

TOSHIBA Transistor Silicon NPN Epitaxial Type (PCT Process) (Bias Resistor built-in Transistor)

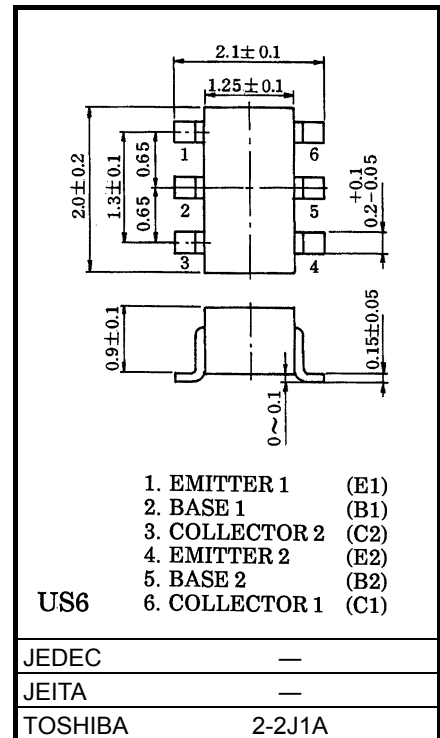
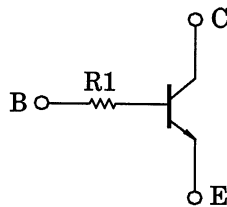
# RN1910,RN1911

Switching, Inverter Circuit, Interface Circuit and Driver Circuit Applications

Unit: mm

- Including two devices in US6 (ultra super mini type 6 leads)
- With built-in bias resistors
- Simplify circuit design
- Reduce a quantity of parts and manufacturing process
- Complementary to RN2910 and RN2911

## Equivalent Circuit



US6

- 1. EMITTER 1 (E1)
- 2. BASE 1 (B1)
- 3. COLLECTOR 2 (C2)
- 4. EMITTER 2 (E2)
- 5. BASE 2 (B2)
- 6. COLLECTOR 1 (C1)

## Absolute Maximum Ratings (Ta = 25°C) (Q1, Q2 Common)

Characterisitic	Symbol	Rating	Unit
Collector-base voltage	V <sub>CB0</sub>	50	V
Collector-emitter voltage	V <sub>CEO</sub>	50	V
Emitter-base voltage	V <sub>EBO</sub>	5	V
Collector current	I <sub>C</sub>	100	mA
Collector power dissipation	P <sub>C</sub> *	100	mW
Junction temperature	T <sub>j</sub>	150	°C
Storage temperature range	T <sub>stg</sub>	-55 to 150	°C

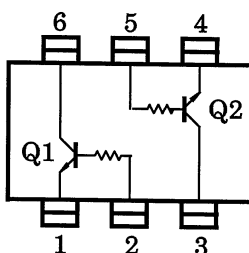
Weight: 6.8 mg (typ.)

Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

\*: Total rating

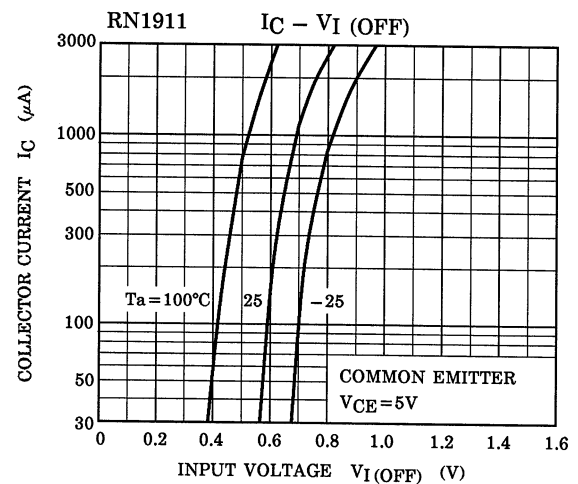
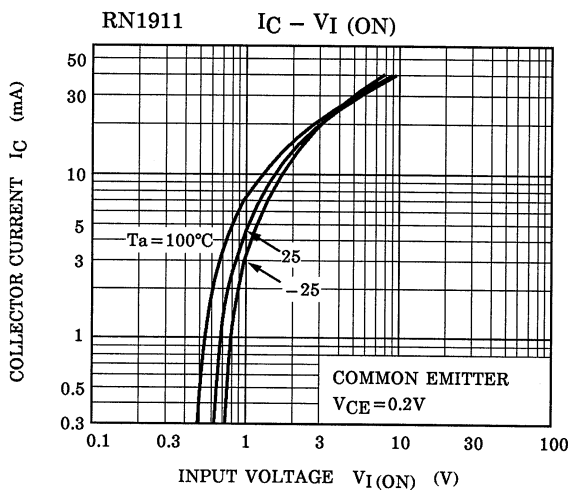
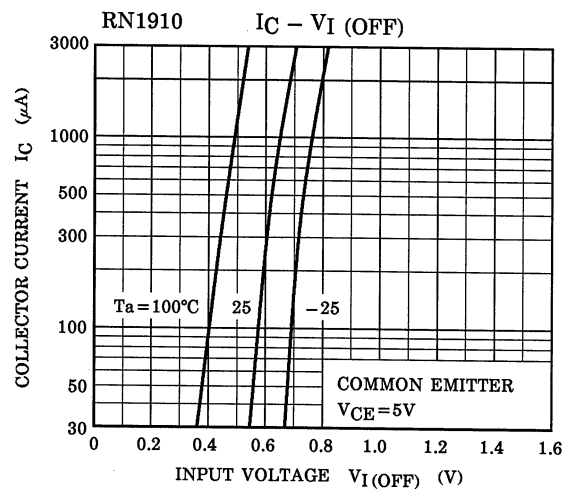
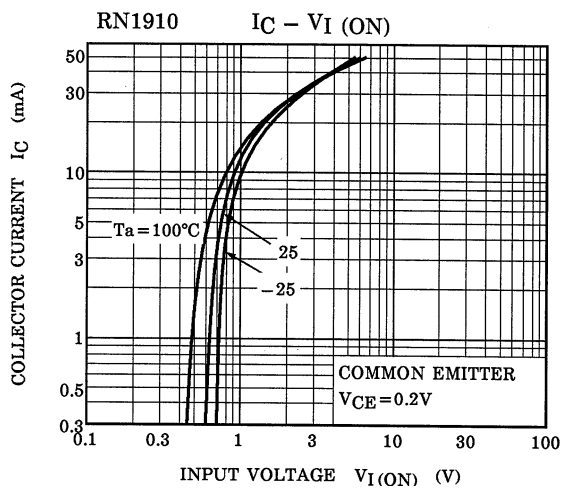
## Equivalent Circuit (Top View)



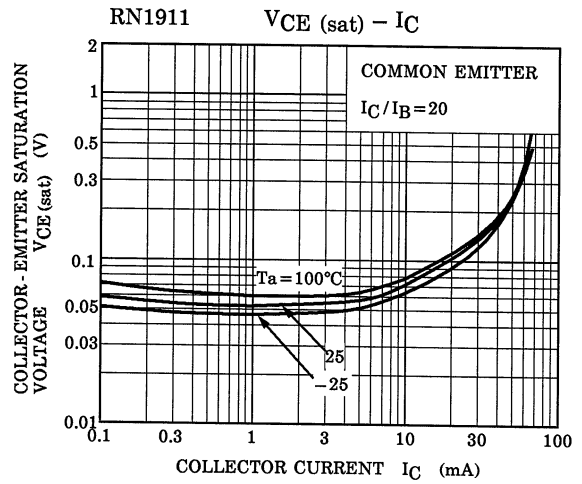
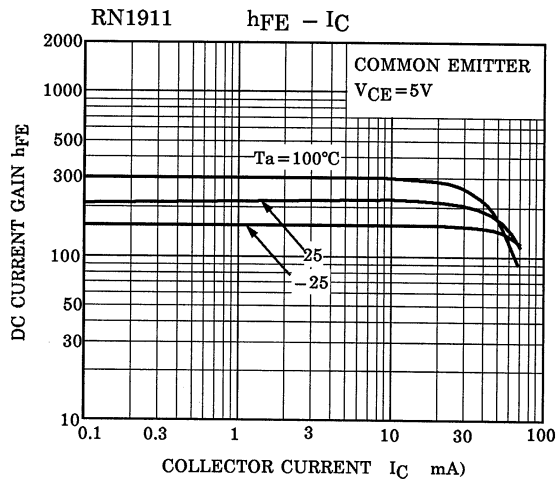
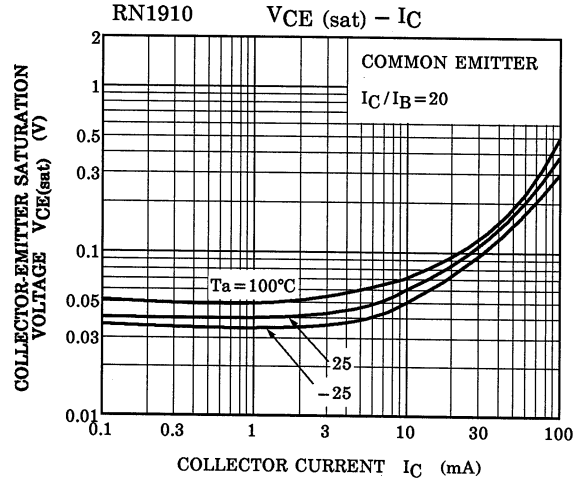
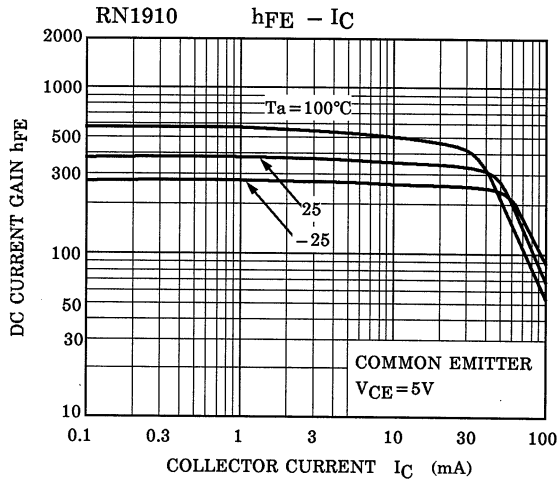
## Electrical Characteristics (Ta = 25°C) (Q1, Q2 Common)

Characteristic	Symbol	Test Circuit	Test Condition	Min	Typ.	Max	Unit
Collector cut-off current	$I_{CBO}$	—	$V_{CB} = 50V, I_E = 0$	—	—	100	nA
Emitter cut-off current	$I_{EBO}$	—	$V_{EB} = 5V, I_C = 0$	—	—	100	nA
DC current gain	$h_{FE}$	—	$V_{CE} = 5V, I_C = 1mA$	120	—	700	—
Collector-emitter saturation voltage	$V_{CE(sat)}$	—	$I_C = 5mA, I_B = 0.25mA$	—	0.1	0.3	V
Transition frequency	$f_T$	—	$V_{CE} = 10V, I_C = 5mA$	—	250	—	MHz
Collector output capacitance	$C_{ob}$	—	$V_{CB} = 10V, I_E = 0V, f = 1MHz$	—	3	6	pF
Input resistor	RN1910	R1	—	3.29	4.7	6.11	kΩ
	RN1911			7	10	13	

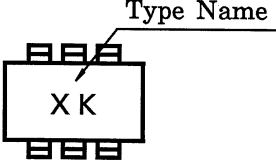
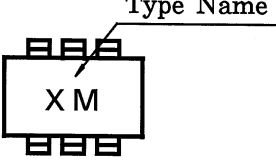
## (Q1, Q2 Common)



(Q1, Q2 Common)



## Marking

Type Name	Marking
RN1910	 <p>The diagram shows a rectangular component with four pins (two on top, two on bottom). Inside the rectangle, the characters 'X K' are printed. A line points from the text 'Type Name' above to the 'X' character.</p>
RN1911	 <p>The diagram shows a rectangular component with four pins (two on top, two on bottom). Inside the rectangle, the characters 'X M' are printed. A line points from the text 'Type Name' above to the 'X' character.</p>

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